

F1-325

I. EXECUTIVE SUMMARY

Project Title: Reducing Biological Uncertainty in Efforts to Restore and Enhance Waterfowl Habitat in the Central Valley of California.

Applicant: Ducks Unlimited, Inc.

Project Description: This project will evaluate the assumptions upon which much of the restoration of wetlands in the Central Valley is based. Models of ideal free distribution will be tested using structural resource diversity among wetland complexes, bird distribution and movements, ratio of energy demand to supply and depletion, and body condition of birds.

Approach/Tasks/Schedule:

This project will be completed by identifying wetland complexes within the basins of the Central Valley and comparing the structural diversity of three of these basins against bird densities, energy supply and depletion, bird movements and distributions, and body condition. Work will begin November 97 and be completed by June 2000.

Justification: Although wetland managers have capitalized on new opportunities provided by changing water law and international wildlife habitat restoration programs, less effort has been devoted to determining benefits that these habitat initiatives have provided waterfowl. The need to evaluate our conservation efforts is critical if we are to allocate water and financial resources in an optimal manner.

Budget Costs and Third Party Impacts: Total request for the proposal is \$307,700. Partial cost break down includes (1) habitat analyses: \$71,500; (2) survey flights: \$ 65,600; (3) telemetry costs: \$133,000; body composition analysis: \$37,600. Both public and private wetland managers will benefit from a critical review of wetland restoration assumptions. Fall water diversions will be more efficient, based on critical needs, rather than historical usage.

Applicant Qualifications: DU is a nationally recognized authority on the restoration and enhancement of wetlands and associated upland habitat. The principals for this proposal have extensive experience in field research for waterfowl and wetlands. DU has administered CALFED Bay-Delta Program Category III grants, such as the M&T/Parrott Fish Screen Project.

Monitoring and Data Evaluation: This is an evaluation project.

Support/Coordination: Previous GIS habitat mapping has been supported by Central Valley Habitat Joint Venture, California Department of Fish and Game, USFWS, BOR, EPA, NASA, and California Rice Industry Association. These data sets will be used to judge wetland complexes. The Biological Research Division of the USGS at Dixon has done extensive waterfowl telemetry work in the Central Valley, and we plan to coordinate research efforts with them.

DWR WASHINGTON
JUL 28 1997

II. TITLE PAGE

Title of Project:

Reducing Biological Uncertainty in Efforts to Restore and Enhance Waterfowl Habitat in the Central Valley of California

Name of Applicant:

Ducks Unlimited, Inc.
Western Regional Office
3074 Gold Canal Drive
Rancho Cordova, California 95670-6116
Tel (916) 852-2000 FAX (916) 852-2200
email:wroducks@gte.net

Principal Investigators:

Frederic A. Reid, Ph.D., Director of Conservation Planning
Mark Petrie, Ph.D., Research Scientist

Type of Organization and Tax Status: Non Profit (501-C3)

Tax Identification Number: 13-5643799

Participants: Ducks Unlimited

RFP Project Type: Monitoring, Assessment, and Reporting

III. PROJECT DESCRIPTION

Project Description and Approach

This evaluation project will test assumptions of landscape wetland restoration in the Central Valley. The relationship between food availability, hydrology, habitat use, and recruitment, has formed the basis for most wintering habitat objectives. Evaluating the assumptions on which restoration programs are based requires that we explicitly state these biological uncertainties and test them in a critical manner. The overriding assumption that guides our effort to improve waterfowl habitat on and around state and federal lands in the Central Valley is that the availability of food resources influences winter survival and reproductive success the following spring. In general, tests of this assumption have proved consistent with expectations. For example, recruitment of northern pintails appeared to decline following dry winters in California when a lack of winter precipitation reduced food availability (Raveling and Heitmeyer 1989, Miller 1986).

Models of ideal free distribution (Fretwell 1972) will be tested using structural resource diversity among wetland complexes, bird distribution, ratio of energy demand to supply and depletion, and body condition of birds.

Location and/or geographic boundaries of project:

This project will focus on three basins within the Central Valley. These basins will be identified based on resource diversity, and will serve as examples for the other basins.

Expected benefits:

The assumptions that are the basis for landscape wetland restoration for the Central Valley have not been critically tested. The benefits will be to test specific models related to the structural diversity of these wetland complexes, food depletion, and waterfowl use. The results should guide us to where we can most effectively effect restoration in the future. These results will be critical in understanding potential fall or winter diversions for wetlands on federal or state refuges or private duck clubs that may impact native fisheries runs.

Background and Biological/Technical Justification:

Changes in law governing the diversion of water in California and development of the Central Valley Joint Venture Implementation Plan, have provided waterfowl managers with both the means and framework to significantly improve habitat conditions for wintering and migratory waterfowl (as well as other waterbirds) within the state. Although managers have capitalized on these new opportunities by substantially increasing the availability of wetland habitat, less effort has been devoted to determining what benefits these habitat initiatives have provided waterfowl. The need to evaluate our conservation efforts is critical if we are to allocate water and financial resources in an optimal manner. Evaluating the assumptions on which our programs are based requires that we explicitly state these biological uncertainties and test them in a critical manner. Moreover, we must identify the adjustments habitat restoration and enhancement programs will undergo should these assumptions prove false.

Proposed Scope of Work:

To test assumptions of landscape wetland restoration, we must identify models as the basis for reducing uncertainty. These models are based on the relationship of wetland complexes, structural diversity, bird use, and food depletion. The methods to test these models are as follows:

- 1) Identify wetland complexes within the nine basins of the Central Valley. For the purpose of this study, the diversity of wetland resources within each basin will be determined using the Shannon-Weaver index where diversity is a function of the number of wetland classes and the relative contribution of each class to overall wetland area within the basin. The number and area of each wetland class will be estimated from previous GIS inventories that classified landcover based on vegetation characteristics and hydroperiod. Three basins will be included in the study, representing the highest, lowest and median wetland diversity.
- 2) Bird densities/unit wetland area. Monthly surveys will be conducted for the entire basin under study to determine the size of waterfowl populations within these particular regions.
- 3) Ratio of energy demand to energy supply. Population densities determined from periodic aerial surveys within a basin will be converted to an estimate of cumulative energy demand over the period of time wintering waterfowl typically occupy wetlands in the Central Valley (e.g. mean monthly population X daily energy requirements of a single period X length of the winter period). Food energy supply within a basin will be determined from published estimates of food availability within different wetland types and the total area of each wetland type within a basin.
- 4) Depletion of food energy. One approach is to sample changes in the abundance of a single food and use these changes to index overall depletion of food energy with a basin.
- 5) Bird movements. Differences in the extent to which birds move within and between basins differing in wetland diversity will be determined by radio-marking 50 juvenile female pintails in each of the basins included in the study. We choose pintails of this sex-age cohort because of the importance of this species in the Central Valley, previous radio-work that provides a basis for comparison, and the fact that juvenile females are most likely to suffer from the effects of inadequate wetland resources.
- 6) Body condition, pair status. Body condition of juvenile female pintails wintering within basins included in the study will be determined on a monthly basis (Oct-Mar). In addition, monthly estimates of the % of female pintails that are paired will be determined for each basin.

Monitoring and Data Evaluation:

This project will provide an evaluation of habitat use patterns by waterfowl, especially northern pintail, in three major basins of the Central Valley. These data will be used to test assumptions related to landscape wetland restoration.

Implementability:

All procedures of this project have been accomplished on similar work by the principal investigators. DU has an excellent track record in timely completion of projects.

Costs and Schedule to Implement Proposed Project:*Budget Costs***Phase 1:**

Project Phase & Task	Direct Labor Days	Direct Salary & Benefits	Overhead Labor	Service Contracts	Material & Acquisitions	Misc. & Other Costs	Total Cost
Habitat Analyses	200	60,000	6,000		1,500	4,000	71,500
Survey Flights	170	40,000	4,000	20,000	600	1,000	65,600
Telemetry Costs	310	90,000	9,000	14,000	15,000	5,000	133,000
Body Comp. Analysis	20	6,000	600	30,000	1,000		37,600
Subtotal	700	196,000	19,600	64,000	18,100	10,000	307,700

Schedule Milestones:

Project Phase and Task	Start Date	Completion Date
Habitat Analysis (Determining habitat diversity)	Nov-97	Mar-00
Survey Flights (Determining bird densities)	Nov-97	Mar-00
Telemetry Costs (Radios, Capture costs, Vehicles)	Oct-98	Mar-00
Analysis of northern pintail body condition	Oct-98	Mar-00

V. APPLICANT QUALIFICATIONS

Ducks Unlimited, Inc. is the leader in wetland restoration. Since its origins in 1937, DU has strived to understand the principals behind wetland landscape hydrologies and its impacts on long-term productivity. DU's Western Regional Office has actively restored thousands of acres of wetlands in the Central Valley with a multitude of partners over the last 10 years. The staffing for this project will consist of Director of Conservation Planning, Research Scientist, six GIS/Remote Sensing Analysts and fourteen biologists. We intend to work with graduate students and accomplished senior scientists for much of this effort.

Frederic Reid, Ph.D. - Director of Conservation Planning. Dr. Reid has nearly 20 years experience with wetland and waterbird management, especially on migration and wintering areas. He has published over 50 manuscripts on wetland related issues and has extensive experience in the Central Valley system.

Mark Petrie, Ph.D. - Research Scientist. Dr. Petrie is an accomplished researcher in waterfowl energetics and wetland ecology. He has modeled waterfowl distribution with habitat resource data and flooding regimes.

Michael Bias, Ph.D. - Regional Biologist. Dr. Bias has led several wetland restoration initiatives in the Central Valley. He has extensive training in telemetry, energetics, and statistical modeling.

VI. COMPLIANCE WITH STANDARD TERMS AND CONDITIONS

DU has administered multiple government contracts with applicable compliance standards.

Certificate of Incorporation of DUCKS UNLIMITED, INC.

WE, THE UNDERSIGNED, being all of full age and citizens of the United States and a majority of whom are citizens and residents of the District of Columbia, desiring to form a membership corporation pursuant to and in conformity with Chapter Five of Title Five of the Code of Laws of the District of Columbia, DO HEREBY CERTIFY:

FIRST: The name of the corporation shall be:

DUCKS UNLIMITED, INC.

SECOND: The corporation shall have perpetual existence.

THIRD: The particular business and objects of the corporation are:

To restore and perpetuate wild ducks and other wild waterfowl on the North American continent; to promote, carry on, conduct, and foster scientific research, education, training, and publication in the ornithological sciences; to establish departments of research and scientific study with particular reference to the enhancement of knowledge concerning the waterfowl of the North American continent; to establish, promote, assist, contribute to, or otherwise encourage the study of conservation, restoration, and management of wild waterfowl and its habitat; and in connection therewith, to grant scholarships, prizes and rewards;

To maintain sanctuaries for wild life, and to take, receive, hold, and convey real and personal estate necessary for the purposes of the corporation as stated in this certificate, and other real and personal property the income from which shall be applied to the purposes of the corporation.

In pursuance of, and not in limitation of the general powers conferred by law, and the objects and purposes herein set forth, it is expressly provided that this corporation shall have the following powers:

To do all such acts as are necessary or convenient to attain the objects and purposes herein set forth, to the same extent and as fully as any natural person could or might do, and as are not forbidden by law or by this Certificate of Incorporation or by the By-Laws of this corporation;

To take and hold by bequest, devise, gift, purchase, or lease, either absolutely or in trust, for any of its purposes, any property real or personal, without limitation as to amount of value, except such limitation, if any, as may be imposed by law; to transfer and convey the same, and to invest and re-invest the principal and income thereof, and to deal with and expend the principal and income of the corporation in such manner as in the judgment of the Trustees will best promote its objects; and in order properly to prosecute the objects and purposes as above set forth, the corporation will have full power and authority to purchase, lease, and otherwise acquire, hold, mortgage, convey and otherwise dispose of all kinds of property, both real and personal, both in the District of Columbia, and in any or all of the states of the United States, the territories or colonies of the United States, Alaska, the Dominion of Canada, Newfoundland, Mexico, the Central American countries, and other foreign countries, and colonies or dependencies thereof, and generally to perform all acts which may be deemed necessary for the proper and successful prosecution of the objects and purposes for which this corporation is created.

To have offices and promote and carry on its objects and purposes, within or without the District of Columbia, and in all the states, territories or foreign possessions of the United States, and in foreign countries.

To have all powers that may be conferred upon corporations formed under Chapter Five of Title Five of the Code of Laws of the District of Columbia.

The corporation shall be non-political, shall not promote the candidacy of any person seeking public office; and shall not by its activities, or any substantial part thereof, attempt to influence legislation by propaganda or otherwise.

FOURTH: The corporation shall be without capital stock. All property, real and personal, which the corporation shall receive shall be used exclusively for educational and scientific purposes, including the

restoration and perpetuation of wild ducks and other wild waterfowl on the North American continent; and no part of the income from the same shall inure to the benefit of any private shareholder or individual; provided, however, that reasonable compensation may be paid to an officer, member, or employee for services actually rendered the corporation.

FIFTH: The property of the officers, trustees and members of this corporation shall not be subject to or chargeable with the payment of corporate debts or obligations to any extent whatsoever.

SIXTH: The Board of Trustees shall have the power to make, alter, change, and amend by-laws for the government of the corporation and for the admission and withdrawal of members thereof.

SEVENTH: The meetings of the members and of the Trustees of this corporation may be held in the District of Columbia, or elsewhere within or without the confines of the United States or its possessions.

EIGHTH: The number of Trustees of the first Board of Trustees of this Corporation shall be FIVE, with power to change or increase and add to their number in accordance with provisions of the By-Laws.

The Board of Trustees shall have the power to appoint from their own members an Executive Committee consisting of all of the officers of the corporation including all vice presidents, all living past presidents and such other persons as may be designated by the Board of Trustees, five of whom, or such other number as may be specified by the By-Laws, shall constitute a quorum, who, when the Board of Trustees is not in session, shall have and shall exercise all the powers of the Board of Trustees, unless otherwise provided in the corporation's By-Laws. The Board of Trustees shall elect at its first meeting from its own members a President, and shall appoint a Treasurer and a Secretary and such other officers as may be provided for by the By-Laws, who need not be members of the Board. The Board of Trustees shall at such meeting select from their number, one-fifth of the number thereof to serve for one year, one-fifth to serve for two years, one-fifth to serve for three years, one-fifth to serve for four years, one-fifth to serve for five years; and each subsequent election of Trustees shall be for a period of one year or until their successors are duly elected and qualify. Vacancies occurring by death, resignation, or otherwise shall be filled by the remaining Trustees in such manner as the By-Laws shall prescribe and the persons so elected shall thereupon become Trustees.

NINTH: The names and post-office addresses of the Trustees until the first meeting are:

Arthur M. Bartley
500 Fifth Avenue, New York, N.Y.
Dr. John A. Hartwell
2 East 103rd Street, New York, N.Y.
Newbold L. Herrick
25 Cedar Street, New York, N.Y.
John C. Huntington
500 Fifth Avenue, New York, N.Y.
Wayne Johnson
50 Broadway, New York, N.Y.

TENTH: The Registered Office of this corporation in the District of Columbia shall be at 918-16th Street, N.W., in care of CT Corporation System, the corporation's Registered Agent, Washington, D.C.

WITNESS our hands and seals this 29th day of January One Thousand Nine Hundred and Thirty-Seven.

CHRISTABEL E. HILL

(Witness)

DISTRICT OF COLUMBIA: ss:

ERNEST O. PALAND (SEAL)

WINSTON E. HOBBS (SEAL)

JOSEPH V. McBRIDE (SEAL)

I, CHRISTABEL E. HILL, a Notary Public in and for the District of Columbia, do hereby certify that ERNEST O. PALAND, WINSTON E. HOBBS, and JOSEPH V. McBRIDE, parties to a certificate of incorporation bearing date of January 29th, 1937, and hereto annexed, personally appeared before me in said District, the said ERNEST O. PALAND, WINSTON E. HOBBS and JOSEPH V. McBRIDE being personally known to me as the persons who executed the said certificate of incorporation and acknowledged the same to be their act and deed.

GIVEN under my hand and seal this 29th day of January, 1937.

CHRISTABEL E. HILL

CHRISTABEL E. HILL

Notary Public

Notary Public

DISTRICT OF COLUMBIA

My Commission Expires July 15, 1940

NONDISCRIMINATION COMPLIANCE STATEMENT

STD. 19 (REV. 3-85) FMC

COMPANY NAME

Ducks Unlimited, Inc.

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME

James L. Ware

DATE EXECUTED

12/18/95

EXECUTED IN THE COUNTY OF

Shelby In

PROSPECTIVE CONTRACTOR'S SIGNATURE

Senior Group Manager

PROSPECTIVE CONTRACTOR'S TITLE

Ducks Unlimited, Inc.

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME

PERSONNEL POLICIES AND PRACTICES

EQUAL EMPLOYMENT OPPORTUNITY

Statement of Policy

At Ducks Unlimited, Inc. it is our policy to recruit and hire employees without regard to or discrimination because of age, race, creed, color, national origin, sex, handicap or veteran status. This policy of nondiscrimination applies to all phases of employee relations – hiring, compensation, performance rating, promotion, transfer and other personnel matters.

Our employment objective is to select individuals who meet the organization's high standards of character, education and occupational qualifications; who can carry out the organization's work competently; who have capacity for growth; and, who will become an active part of our organization.

We know that our strength and future growth depend directly upon the contribution made by each person within our organization. Productivity and efficiency result from real job satisfaction and from the opportunity each person has for his or her individual self-development. Our employment policy is designed to:

- Place each employee, insofar as practicable, in a position which best suits the individual's natural and acquired aptitudes and skills.
- Offer each employee opportunity for self-development and advancement through training and on-the-job experience.
- Accord fair and equitable treatment to every employee at all times.
- Recognize the importance of the work of each employee to the overall success of the organization.

SEXUAL HARASSMENT

Statement of Policy

Ducks Unlimited, Inc. maintains a strict policy against sexual harassment. **Simply put, sexual harassment will not be tolerated on the part of any employee.** All employees are responsible for assuring that the workplace is free from sexual harassment. Sexual harassment is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature, where:

- Submission to the advances is made either explicitly or implicitly a term or condition of employment.
- Submission to or rejection of the advances is used as the basis for making employment decisions.
- Such conduct interferes with an individual's work performance or creates an intimidating, hostile or offensive working environment.

All employees should avoid any action or conduct that might be viewed as sexual harassment. Approval of, participation in, or acquiescence in conduct constituting sexual harassment will be considered a violation of this policy. If any employee believes that he or she has been subject to sexual harassment at work by anyone, including supervisors, co-workers or visitors, he or she should report this immediately to his or her immediate supervisor or Human Resources. Sexual harassment complaints will be handled with as much confidentiality as possible. There will be no retaliation against any employee who reports a claim of sexual harassment or against any employee who is a witness to the harassment. An immediate investigation will be conducted in an attempt to determine all the facts concerning the alleged harassment. In making this investigation, every effort will be made to be fair to all parties involved. If it is determined that sexual harassment has occurred, corrective action will be taken, up to and including reprimand, discharge, or other appropriate action.

If it is determined that no sexual harassment has occurred, or there is not sufficient evidence to conclude that harassment has occurred, this determination will be communicated to the employee who filed the complaint.

DRUG FREE WORKPLACE PROGRAM

Statement of Policy

Because substance abuse poses a serious threat to our employees, their families and to the entire organization, Ducks Unlimited has established this policy in an effort to promote and maintain a drug-free work environment.

The ultimate goal of this policy, however, is to balance respect for individual privacy with the organization's need to maintain a safe, productive, drug-free work environment for all employees; maintain safety and security at DU's community-based events, as well as at the facilities and properties in the communities where we are located; and, provide a quality of service to the organization's members, as well as non-members and visitors, in a fashion consistent with the high standards set by the Board of Directors of Ducks Unlimited, Inc.

Standard of Conduct

As a Standard of Conduct for employees of Ducks Unlimited, employees will not be permitted to possess, consume, or distribute drugs, controlled substances or abuse alcohol in the workplace or report to work or perform their duties under the influence of alcohol or with drugs present in their system. To allow otherwise jeopardizes the safety of our fellow employees, our members, our facilities, and the communities which we rely upon for support. Any employee determined to be in violation of this policy or standard will be subject to disciplinary action, which may include termination, even for the first offense.

Drug and Alcohol Abuse Screening/Testing

Ducks Unlimited recognizes that carefully selected tests and testing procedures have a proper role in any comprehensive substance abuse program, as do properly conducted searches of the effects, vehicles and persons of employees, contractors or visitors.

• Job Applicants

As a condition of regular employment all applicants must complete a drug screen test. If test results are confirmed positive, the employment offer will be withdrawn.

• Current Employees

The Company utilizes screening practices to identify employees who use illegal drugs or abuse alcohol. It is a condition of continued employment for all employees to submit to a drug screen test when:

- a. there is sufficient cause to believe an employee is under the influence of alcohol or has drugs present in their system; or,
- b. there is any mishap or accident involving an employee during business hours or while on Company business in which injury to individuals or damage to property occurs as a result of the impaired employee's involvement.

Failure to submit to required medical or physical examinations/tests is considered misconduct, and as such, grounds for disciplinary action, including termination.

General Procedures

Any employee reporting for work visibly impaired is unable to properly perform required duties and will not be allowed to work. If, in the opinion of the employee's supervisor the employee is considered impaired, the employee will be transported by taxi or an alternative safe transportation mode to his/her home or a medical facility. **An impaired employee will not be allowed to operate or drive any vehicle during business hours or while on official Company business, or any vehicle rented, leased, owned or otherwise intended for Company use or business.**